

Occurrence of the Carpenter Frog in Florida

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THE available statements and maps of the range of the Carpenter Frog, *Rana virgatipes* Cope, indicate its southern limit to be the Okefenokee Swamp of Georgia. No record of its occurrence in Florida has come to my attention, though the adjacent swamps in that state are almost continuous with the Okefenokee.

On March 23 and July 30, 1968, my son, James, and I traveled to this section of Florida to look for *Rana virgatipes*. On each trip few species of anurans were calling, and those few were readily identified as common Florida species. Seining efforts also yielded only Florida anurans until, on the July trip, we forced our way into a dense cypress swamp in Baker County one-half mile south of the Georgia line and 4 1/2 miles east of Columbia County. Although the seine could be pulled through the thick growth of *Sphagnum* only with difficulty, three large tadpoles were caught that appeared different from all other Florida larval anurans, though bearing a superficial resemblance to the larvae of the Pig Frog, *Rana grylio* Stegner. Two of these have been preserved (FSU 830), and one died in an aquarium several months later.

The preserved specimens were compared with six specimens of *Rana grylio* of comparable size (length of 70 mm or more) and, on the following bases, were determined to be specimens of *Rana virgatipes*. The lengths of these two specimens are 70 and 77 mm, but each has hind limbs about 7 mm long. A specimen of *R. grylio* measuring 70 mm shows only rudiments of the limb buds. The rows of dark spots in the dorsal fin and on the tail musculature are bolder than in *grylio*, the latter row continuing to the tail tip. The dorsal fin is also edged with numerous dark spots of similar size, unlike the condition in *grylio*. Whereas the abdominal wall of *grylio* is opaque, with a light ground color, heavily mottled with dark pigment, that of the *virgatipes* specimens is translucent and appears dark bluish in preservative. Both specimens of *virgatipes* had two complete rows of papillae below the lower tooth rows, and every specimen of *grylio* only one. All six specimens of *grylio* showed a second upper tooth row, with one lateral half being at least 10 per cent of the length of the first upper tooth row in four of the six. Both specimens of *virgatipes* lacked the second upper

tooth row. The third lower tooth row was present in all specimens of *grylio*, but lacking in one of *virgatipes*. All of these characteristics except the last agree with those given in the keys, descriptions, and photographs in Wright and Wright (1949), but the loss of a lower tooth row is not cited there for either species. Another character not precisely stated in that work was also noted: the specimens of *virgatipes* have a noticeably longer spiracle, its tip being equidistant between the eye and the base of the anal tube. The tip of the spiracle proved consistently closer to the eye than to the anal tube both in the six large specimens of *grylio* and in the several small specimens examined.

In one respect the specimens of *R. virgatipes* did not agree with Wright and Wright (plates XIII and XIV). The shape and thickness of the pigmented upper mandible of both species were like those of *grylio*, not like those depicted for *virgatipes*. Although no explanation of this discrepancy presents itself, the overwhelming weight of the evidence convinces me that the two new specimens are indeed the larval stage of *Rana virgatipes*. In all obvious respects the live specimen closely resembled them.

In two proportions slight differences were noted between the specimens of *Rana grylio* and *R. virgatipes*, but with considerable overlap. The ratio of body length to tail length of *grylio* (measured along lateral axis) ranged from 42-52 per cent, as against 50-55 per cent in *virgatipes*. The maximum tail depth in *grylio* ranged from 29-37 per cent of tail length; in *virgatipes*, 32-35 per cent. In view of the small number of specimens, these differences are insignificant.

As the color differences mentioned above apparently are not present earlier in life (see Stage 25 in Catalogue of American amphibians and reptiles, 67.2) it was thought advisable to apply other criteria to the identification of other specimens caught in nearby ditches and streams and first considered specimens of *Rana grylio*. Five of these were much smaller (40-55 mm) and showed the short, more anterior spiracular tube of *Rana grylio*. Another specimen in this lot was comparable in size to the *virgatipes* specimens, but had the color pattern of *grylio* and lacked definite hind limbs. It resembled *grylio* in most other respects also, but showed two rows of papillae below the lower tooth rows, lacked a third lower tooth row, and had less dark mottling on the sides of the

belly. Although it is best referred to *grylio*, it suggests the possibility of an interbreeding of the two species somewhere in its ancestry.

On April 12, 1969, the two of us returned to the swamp with D. Bruce Means and seined for larvae before dark. Out of 38 collected, 30 proved to be *Rana clamitans*, five were *grylio*, and only three were *virgatipes*. These specimens of *virgatipes* did not differ materially from the July specimens except in size, the largest having a total length of 86 mm (FSU 879; DBM 1202).

After dark ten adults were captured, four of which were *Rana virgatipes* and six *R. grylio*. Although no *Rana clamitans* were caught, a few were heard calling. No other ranids were heard. The largest specimen of *virgatipes* measured 39.5 mm in head-body length, smaller than most of the *grylio* specimens.

The strong similarity of *virgatipes* to *grylio* in the larval stage is paralleled in the adult stage. Both lack the dorsolateral ridge but have two light dorsal stripes and a white stripe on the rear surface of the thigh. Although the dorsal stripes are more noticeable in *virgatipes* and six *R. grylio*. Although no *Rana clamitans* were in the two species. These were the more fully webbed hind toes in *grylio* and a conspicuous white lateral stripe in *virgatipes*. The strong similarity during two stages of the life cycle suggests that these two species are very closely related.

LITERATURE CITED

- RIEMER, WILLIAM J. (ed.). 1963 et seq. Catalogue of American amphibians and reptiles. Amer. Soc. Ichth. & Herp., Kensington, Maryland.
- WRIGHT, ALBERT H., AND ANNA A. WRIGHT. 1949. Handbook of frogs and toads of the United States and Canada. Comstock Publ. Asso., Ithaca, New York, 640 pp.

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